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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,878	07/07/2003	Timothy Warner	22130-00027-US	6991
30678	7590	11/13/2006		
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EXAMINER				
MORILLO, JANELLE COMBS				
ART UNIT		PAPER NUMBER		
1742				

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/612,878

Applicant(s)

WARNER ET AL.

Examiner

Janelle Combs-Morillo

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-111 is/are pending in the application.
- 4a) Of the above claim(s) 22-24, 34, 35, 57-59 and 99-101 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-21, 25-33, 36-56, 60-98 and 102-111 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/1/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 1, 2006 has been entered.

Allowable Subject Matter

2. The indicated allowability of claims 1-21, 25-33, 72-75, 110, 111 is withdrawn in view of the newly discovered reference(s) to JP 02-236441A. Rejections based on the newly cited reference(s) follow.

Specification

3. The examiner acknowledges paragraph [0068] of the specification, which states "articles such as 'the', 'a' and 'an' can connote the singular or plural". However, for the instant claims, the examiner has interpreted articles such as 'the', 'a' and 'an' to connote the singular only, the claims must specifically recite the plural when a plural is intended. Applicant argues that it is clear that a claim would also cover more than one of said articles under well established canons of claim construction. The examiner requests applicant clarify said position by providing a copy of said well established canons.

Claim Objections

4. Claim 37 is objected to because of the following informalities: claim 37, when incorporated into independent claim 36, is apparently a substantial duplicate of instant claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 36, 38-56, 60-71, 76, 77, 79-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heymes et al (US 6,077,363) in view of Rioja (US 6,562,154).

Heymes teaches a wrought Al-Cu alloy sheet or plate (column 5 lines 6-21) comprising (in weight%) 3.5-5.0% Cu, 1.0-2.0% Mg, <0.25% Si, <0.25% Fe, <0.55% Mn (abstract), which overlaps the presently claimed ranges of Cu, Mg, Si, Fe, Mn, Ag, and Zr (cl. 36, 38-43, 65, 66, 76, 77, 79-85). Heymes teaches typically 0.05-0.11% Zn is present in said alloy (see Table at column 6), which falls outside the instant range of Zn (cl. 36, 40, 41, 66, 76, 77, 82, 85).

However, Rioja teaches a substantially similar Al-Cu alloy, wherein up to 1.0% Zn can be added to form strengthening precipitates (column 5 lines 15-22, at claim 8). It would have been obvious to one of ordinary skill in the art to add Zn to the alloy taught by Heymes because Rioja teaches said addition is useful to provide strengthening precipitates.

Art Unit: 1742

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility.

Additionally, "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages," In re Peterson, 65 USPQ2d at 1379 (CAFC 2003).

Concerning product by process claims 44, 67, 68, 86, Heymes teaches said alloy can be worked and heat treated, including hot rolling, natural aging, quenching, and controlled stretching 1.5-3%, and further age hardening to a T351 temper (column 6 lines 11-15). Also, Rioja mentions a separate solution heat treatment step can be applied to Al-Cu alloys (commonly known as a T6 type temper). It would have been obvious to one of ordinary skill in the art to apply a separate solution heat treatment step (T6 type temper, Rioja at column 7 line 12) to the Al-Cu alloy taught by Heymes because Rioja teaches said treatment is conventional for Al-Cu alloys, and useful for high strengths (column 6 line 67).

Concerning claims 45, 69, 87, Heymes said alloy can be worked into sheets >12mm thick as well as 0.5-3mm thick sheets (column 1 lines 5-6).

Concerning claims 46, 64, 88, Heymes teaches said alloy can be plated with another aluminum alloy (abstract) on at least one face, wherein said cladding alloy has better corrosion resistance (column 1 line 18), such as AA1070 (see Example 2).

Art Unit: 1742

Concerning claims 55, 56, Heymes teaches said alloy is used for aircraft fuselages (column 2 line 47).

Concerning claims 47-54, 60-63, 70, 71, 89-96, which mention various properties such as TS, YS, elongation, damage tolerance, crack propagation, corrosion resistance, Heymes teaches said alloys exhibit a UTS 439.5-478MPa, YS 290-351MPa, elongation 13.6-25% (Table 1, 4), which falls within the minimums of UTS, YS, and elongation. Concerning the properties not directly taught by the prior art, because Heymes teaches an alloy within the presently claimed alloying ranges, then substantially the same properties are expected to be present. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Because Heymes teaches substantially similar processing steps performed on an alloy that falls within the instant alloying ranges, it is held that the same properties would be expected to be present.

7. Claims 1-21, 25-33, 36-56, 60-98, 102-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 03-236441A (JP'441) in view of Heymes et al (US 6,077,363).

JP'441 teaches a wrought Al-Cu alloy plate (Ex. 1) comprising (in weight%) 3-5% Cu, 0.5-2.0% Mg, 1-3% Zn, 0.03-0.20% Ti, 0.001-0.006% B, one or two of: 0.1-0.5% Mn, 0.05-0.2% V, 0.05-0.30% Zr, 0.05-0.20% Cr (abstract), which substantially overlaps the presently claimed ranges of Cu, Mg, Zn, Mn, Ag, and Zr (cl. 1-5, 29, 30, 36, 37-43, 65, 66, 72, 73, 76-85,

Art Unit: 1742

106, 107). JP'441 teaches said aluminum alloy can be used for high strength structural parts such as tanks and rockets, where excellent weldability and high strength are needed (abstract). JP'441 teaches the reason to add Zn 1-3% is to maximize strength while maintaining good ductility and weldability (see "Means for Solving the Problem").

Si and Fe ranges of independent claims 1, 37, 78, and dependent claims 6, 7, 42, 43, 83, 84, though JP'441 does not specify the amounts of Si and Fe included as impurities, Heymes, who is drawn to a substantially similar Al-Cu high strength alloy, teaches $\text{Fe} < 0.20\%$ and $\text{Si} < 0.17\%$ (column 10 lines 39-40) provides good mechanical properties (column 4 lines 34-43, column 2 lines 8). It would have been obvious to one of ordinary skill in the art to hold the Fe and Si impurities to $< 0.20\%$ and $< 0.17\%$ as taught by Heymes, for the Al-Cu alloy taught by JP'441, because Heymes teaches said low impurity amounts provide an Al-Cu alloy with good strength properties.

Overlapping ranges have been held to be a prima facie case of obviousness, see MPEP § 2144.05. It would have been obvious to one of ordinary skill in the art to select any portion of the range, including the claimed range, from the broader range disclosed in the prior art, because the prior art finds that said composition in the entire disclosed range has a suitable utility.

Additionally, "The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages," *In re Peterson*, 65 USPQ2d at 1379 (CAFC 2003).

Concerning product by process claims 9, 31-33, 44, 67, 68, 86, 108, 109, JP'441 teaches hot rolling to a plate thickness of 12 mm (Ex. 1), solution heating to 480-540 °C followed by a 1

Art Unit: 1742

or 2 step aging at 130-200°C and cold working <8% (see “Means for solving the problem”, examples).

Concerning claims 10, 45, 69, 87, 110, JP’441 mentions a 12 mm rolled plate can be formed from said alloy (Ex. 1), which falls within the instant range.

Concerning claims 11, 18, 19, 28, 46, 64, 88, and 105, though JP’441 does not mention plating, Heymes teaches said alloy can be plated with another aluminum alloy (abstract) on at least one face, wherein said cladding alloy has better corrosion resistance (column 1 line 18), such as AA1070 (see Example 2). It would have been obvious to one of ordinary skill in the art to plate the alloy taught by JP’441 in order to improve the corrosion resistance (taught by Heymes).

Concerning claims 20, 21, 55, 56, 97, 98, though JP’441 does not mention said alloy is used for aircraft fuselages, Heymes teaches substantially similar Al-Cu alloys can be formed into structural fuselage members (column 2 line 47). It would have been obvious to one of ordinary skill in the art to form the alloy taught by JP’441 into plates for aircraft fuselages, because Heymes teaches substantially similar Al-Cu alloys are useful for fuselages, and because JP’441 teaches exceptional strength and ductility, and weldability (abstract, examples).

Concerning claims 12-19, 25-27, 47-54, 60-63, 70, 71, 89-96, 102-104, which mention various properties such as TS, YS, elongation, damage tolerance, crack propagation, corrosion resistance, JP’441 teaches said alloys exhibit a $UTS \leq 501\text{MPa}$, $YS \leq 441\text{MPa}$, elongation $\leq 22.8\%$ (Table 2, 4), which falls within the minimums of UTS, YS, and elongation. Concerning the properties not directly taught by the prior art, because JP’441 teaches an alloy within the presently claimed alloying ranges, then substantially the same properties are expected to be

Art Unit: 1742

present. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Because JP'441 teaches substantially similar processing steps performed on an alloy that falls within the instant alloying ranges, it is held that the same properties would be expected to be present.

Response to Arguments

8. In the response filed on September 1, 2006 applicant amended claims 1, 36, and 76. The examiner agrees that no new matter has been added.

9. Applicant has not clearly shown criticality of the presently claimed range of Zn (unexpectedly superior damage tolerance while maintaining strength properties, see instant specification examples and Tables, see also arguments filed 4/18/06) for the instant Al-Cu-Mg-Mn alloy in view of JP'441. JP'441 teaches 1-3% Zn is added to the above mentioned Al-Cu-Mg-Mn alloy, which overlaps the claimed 0.1-1.3% Zn in the range of 1.0-1.3%. Though the examples in the specification show the importance of the lower boundary of Zn (see examples Tables 1-4), said examples do not show the criticality of the upper boundary of Zn (wherein the upper boundary overlaps that of the prior art JP'441 in the range of 1.0-1.3%).

Art Unit: 1742

10. With respect to the rejection of claims 36, 38-56, 60-71, 76, 77, 79-96 under 35 U.S.C. 103(a) over Heymes and Rioja, as stated previously, Rioja teaches motivation to add Zn to the alloy taught by Heymes; and applicant has shown unexpected results said results are not commensurate in scope with the above rejected claims.

Applicant should establish a nexus between the rebuttal evidence and the claimed invention, i.e., objective evidence of nonobviousness must be attributable to the claimed invention, see MPEP 2144.08. The weight attached to evidence of secondary considerations by the examiner will depend upon its relevance to the issue of obviousness and the amount and nature of the evidence, see MPEP 716.01(b). Note the great reliance placed on this type of evidence by the Supreme Court in upholding the patent in *United States v. Adams*, 383 U.S. 39, 148 USPQ 479 (1966). To be given substantial weight in the determination of obviousness or nonobviousness, evidence of secondary considerations must be relevant to the subject matter as claimed, and therefore the examiner must determine whether there is a nexus between the merits of the claimed invention and the evidence of secondary considerations. *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 305 n.42, 227 USPQ 657, 673-674 n. 42 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986).

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

Art Unit: 1742

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ROY KING
SUPERVISORY PATENT EXAMINER
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JCM

November 2, 2006